CLAIMS

What is claimed is:

1. A method of training belief functions, comprising the steps of:

gathering a set of information;

creating probability assignments based on said set of information;

creating combinations of said probability assignments;

measuring an error present in said probability assignments and said combinations of probability assignments;

calculating updates of said probability assignments and said combinations of probability assignments based on said error; and

modifying said probability assignments and said combinations of probability assignments using said updates.

2. The method of Claim 1 wherein said set of information comprises rules.

3. The method of Claim 1 wherein said set of information comprises opinions.

4. The method of Claim 1 wherein said set of information comprises sensor outputs.

5. The method of Claim 1 wherein said set of information comprises a size of an object.

6. The method of Claim 1 wherein said set of information comprises a shape of an object.

7. The method of Claim 1 wherein said set of information comprises heat associated with an object.

8. The method of Claim 1 wherein said step of measuring error comprises a comparison between said probability assignments and a known desired result.

9. The method of Claim 1 wherein said step of measuring error comprises a comparison between said combinations of probability assignments and a known desired result.

10. The method of Claim 1 wherein said step of measuring error comprises a comparison between said probability assignments and a set of characteristics of a desired result.

11. The method of Claim 1 wherein said step of measuring error comprises a comparison between said combinations of probability assignments and a set of characteristics of a desired result.

12. The method of Claim 1 wherein said updates of said probability assignments are calculated using a gradient-descent rule.

13. An apparatus for learning belief functions comprising:

a signal processing unit; and

a set of information sources which couple a set of information to said processing unit;

said processing unit programmed to:

i) create a set of probability assignments based on said set of information;

ii) create combinations of said probability assignments;

iii) measure an error present in said probability assignments and said combinations of probability assignments;

iv) calculate updates of said probability assignments and said combinations of probability assignments based on said error; and

v) modify said probability assignments and said combinations of probability assignments using said updates.

14. The apparatus of Claim 13 wherein said information sources comprise rules.

15. The apparatus of Claim 13 wherein said information sources comprise opinions.

16. The apparatus of Claim 13 wherein said information sources comprise sensors.

17. The apparatus of Claim 13 wherein said error measurement comprises a comparison between said probability assignments and a known desired result.

18. The apparatus of Claim 13 wherein said error measurement comprises a comparison between said combinations of probability assignments and a known desired result.

19. The apparatus of Claim 13 wherein said error measurement comprises a comparison between said probability assignments and a set of characteristics of a desired result.

20. The method of Claim 13 wherein said error measurement comprises a comparison between said combinations of probability assignments and a set of characteristics of a desired result.

21. The method of Claim 13 wherein said updates are calculated using a gradient-descent rule.

Add B1